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"Enzymes in Food—Their Importance," "Formula for Longevity," "Celiac Disease Often Allergy to Wheat," and "Antibiotic Abuse," plus Tip of the Month (Night Coughs in Children) and High Points of Orchex

The following is a transcription of the June 1958 issue of Dr. Royal Lee's *Applied Trophology* newsletter, originally published by Standard Process Laboratories.

Enzymes in Food—Their Importance

It appears that the role of enzymes in food of both man and animal has been a neglected subject. It is an accepted fact in animal feeding circles to assume that exogenous enzymes (from intestinal flora) are important in the digestion of cellulose.[1] It has been established also that the availability of the inositol, phosphoric acid, and the magnesium and calcium phosphates of cereal phytin depends on enzymatic release, either during the yeast-rising of bread or by the action of phytase (phosphatase) in bran or whole grain during its digestion.[2]

In fact, early investigators were unable to find phytin in cereals because the phytase disintegrated it before it could be isolated once the grain was exposed to water in the laboratory operations.[3] That, of course, means that *raw bran or cereal products afford assimilable phytin*, while cooked cereal products *cannot* supply any of the factors in this complex plant product.

The well-known incompetence of pasteurized milk to afford assimilable calcium is no doubt based on this loss of phosphatase by the heat treatment. (Those who say there is no evidence for the need of enzymes in food should explain why Mother Nature put a half dozen or more in milk. Nature never overdoes such things; there is just enough of each vitamin and mineral in the milk of each species to maintain health, not any surplus to compensate for other foods that have lost their normal vitamin content. Dr. Hess long ago found that babies on raw milk never contracted scurvy but promptly did if their milk was pasteurized.[4])

Dr. Pottenger in his celebrated cat tests showed that calcium was not properly delivered to bones and teeth if the animals were fed pasteurized milk, and that condensed milk was still worse.[5] His cats developed pyorrhea and arthritis very quickly. It is very significant that human subjects, even on starvation diets, have no pyorrhea, no arthritis, and practically no tooth decay if they use a minimum of cooked food.[6] These studies were made on street beggars in India, who apparently were in far better health than the average American, starving as he is on an overloaded stomach (full of counterfeit foods).

Here we have the practical result of enzyme destruction in food. We might say with accuracy that such enzyme destruction is the reason why we have to spend a billion and a half dollars per year on repairs to our teeth, to say nothing of the other types of disease resulting from heat processing. The failure of pasteurized milk to supply calcium—and its ability to cause scurvy, hematuria, and nephritis—has been known since 1903.[7]

Dr. Friedherger demonstrated in 1926 that the protein component of food was the chief site of damage in cooking and that twice the food was required to produce the same growth after heat treatment.[8] Of course, enzymes are proteins in nature. It is significant, too, to find that cooked proteins are *more resistant* to the action of digestive enzymes than raw proteins.[9]

Autoclaved or cooked rice bran fails to prevent perosis in chickens.[10] Observers believe the loss of phosphatase to be responsible. Here is a clear-cut case of the necessity of a food enzyme. The equivalent of perosis in chickens is the bone and connective tissue disease syndrome we call arthritis, in its various forms, as well as the fibrositis syndromes of Peyronie's disease and Dupuytren's contracture, no doubt. No manganese is assimilated from the cooked rice, so the test animal contracts the disease.

Potatoes contain three times the phytin of whole wheat.[11] The potato also supplies us with a very important enzyme, tyrosinase (organic copper), an important component of the vitamin C complex first discovered by Dr. Charles de Sajous of Johns-Hopkins—celebrated author of a medical encyclopedia—and considered by him to be vitamin C in toto.[12] (Now we know the complete C complex includes ascorbic acid as well, in addition to the P complex.) No wonder raw potato juice is the best preventive of tooth decay we know of.

The phytates and phytic acid have been falsely announced as barriers to calcium and mineral metabolism based on the theory that they are not subject to assimilation.[13] This is apparently a complete misconception, obvious to anyone who is able to use his common sense; otherwise, how could a cow or horse build bone on a diet of oats and grain naturally full of phytates and phytic acid?

The real barrier to mineral metabolism is the unnecessary cooking of milk, of vegetables, which should be in part assimilated as raw juices, and of cereals, which can be served sprouted as breakfast foods (cracked, soaked, and served raw) or as liquefied drinks after soaking. Soymilk, almond milk, coconut milk, and carrot juice with a little whole wheat flour also furnish enzymes that promote mineral metabolism. Kouchakoff showed us that we should get at least half our food in a raw state to avoid trouble.[14]

Kouchakoff puts the thermal damage point at 191°F for a variety of foods he has tested (such as carrots), by observing the leukocytosis following the ingestion of the food. This figure apparently is damaging to proteins and their amino acids, ten of which are damaged or destroyed by cooking.[15]

It is highly interesting to find that there are two separate thermal destruction points for human skin and human connective tissue. If a strip of skin is put under tension and placed in a water bath and the temperature increased, it suddenly contracts at 149°F (the enzyme destruction temperature of pasteurization).

If the same test is made of human cartilage, the sudden contraction is found to occur at 191°F, Kouchakoff's lower limit of thermal food damage.[16] Apparently, the destruction of food enzymes can be traced to something very definite biochemically as well as definite in Dr. Pottenger's test animals.

Hess pointed out that the promoters of pasteurized milk in 1912 claimed that the process caused no loss of "enzymes or nutritional factors." Hess showed that vitamin C was destroyed to the point that babies fed on pasteurized milk invariably contracted scurvy and that where orange juice failed to cure the scurvy, "potato produces a rapid cure." Here is the evidence that potato is in some cases superior to orange—no doubt because it contains the tyrosinase of Sajous, who thought that compound alone constituted the whole of vitamin C.

(Pasteurization also destroys lysine and tryptophan, thereby making such treated milk a cause of arthritis, pyorrhea, and dental caries. As to the cariogenic action, see reference 18; for pyorrhea and arthritis, see reference 5.)

Raw potato also carries a high content of phosphatase, in addition to the aforementioned threefold content of phytin relative to whole wheat, so it is one of the few foods that gives us vitamin C and bone-building minerals along with the enzymes to assimilate them in a form that can be extracted as juice—so necessary in baby feeding.[17] (In making potato juice, a little lemon must be added, to block darkening by oxidation while in the juicer.)

It is a reasonable assumption in view of the foregoing facts to conclude that exogenous enzymes—normally present in any wholesome diet—are necessary to life and health. There is no experiment on record (as far as we have been able to locate in medical and scientific literature) that offers any evidence to the contrary. If anyone has a different belief, we would like to hear from him with the idea of arranging a test experiment, the costs to be met by the loser in the argument.

Since the vast majority of vitamins are parts of enzyme systems, it is obviously impossible to state that no enzyme is necessary in food, the position our federal food and drug authorities take. They have denied the existence of the unsaturated fatty acids (as the vitamin F complex), but a denial of a food necessary to life does not make that food unnecessary. Since our most critical disease syndrome today is cardiovascular disease, now proven to be aggravated by a deficiency of the vitamin F complex, we must be cautious about accepting the pronouncements of "experts," whether they are telling us pasteurization is harmless or that vitamin F is nonexistent.

To be ignorant today is to die prematurely of a preventable deficiency disease—a disease that is seldom found in the street beggars of India.[6]

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+1 (866) 407-9323
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It is probable that natural vitamins are normally ingested as enzymes, and the well-known failure of synthetic vitamins to perform a nutritional effect (as distinguished from a *pharmacological* effect) may be because of a difference in this regard.[16] The pharmacological effect is often quite the opposite of the nutritional effect.

Synthetic thiamine cannot detoxify a fatigued muscle, for instance, while natural thiamine does.[17] And synthetic vitamin D causes kidney calcification and hematuria, whereas the natural vitamin D never does.[18]

A "complete" diet of synthetic vitamins plus a basal ration failed to maintain rats in tests conducted at the University of California under the supervision of Dr. Herbert M. Evans.[19]

Another experiment there, a test of the available forms of synthetic D vitamins on dogs, caused a rapid trend to premature senility.[20]

In a test on children comparing the effects of natural vitamin D with those of the synthetic vitamin, better protection against tooth decay was shown with 800 units of natural D than with 3200 units of synthetic D.[21]

Ascorbic acid failed to raise the complement level in rabbit, but cabbage did. The ascorbic acid level of blood was not raised by administration of ascorbic acid in the rabbit, but cabbage did produce a rise in blood ascorbic acid.[24] (The rabbit no doubt promptly threw out the synthetic "vitamin" via the kidney route—it being a counterfeit—since most synthetics are unacceptable to the tissue.)

Synthetic amino acids were found to be poisonous in tests conducted at Johns Hopkins Hospital. The public was warned against synthetic imitations of protein, the point stressed that "it would seem wise to employ only the natural forms in human therapy."[25]

Natural estrogens activate histaminase; synthetic estrogens inhibit histaminase.[26]

Natural thyroxine increased the oxygen uptake of tissue cultures 300 percent; synthetic thyroxine had no effect.[27]

Synthetic adrenocortin causes hypertension; natural does not.

Synthetic adrenocortin caused heart enlargement; natural does not.

Synthetic adrenocortin caused kidney degeneration; natural does not.

Synthetic adrenocortin failed to promote antibody formation; natural promoted formation.[28]

Synthetic glutamic acid (dextro) has the opposite effect of natural glutamic acid (levo), in that it inhibits any natural glutamic acid present from taking part in the normal buffer system in the formation of glutamine.[29]

We might continue to infinity, but enough evidence is sufficient, as Dr. Einstein once told a skeptic. Here is Dr. Anton J. Carlson's comment:

> "On the whole we can trust nature further than the chemist and his synthetic vitamins. Recently, Professor J.C. Drummond, scientific advisor to the British Ministry of Food, voiced his reluctance to put the dietary safety of a nation on synthetic vitamins as a long-range policy. He thinks we must and should provide the natural vitamins in the natural foods. I stand on that platform until we know a great deal more than we do today about foods and human nutrition."[30]

Dr. Carlson was admittedly the biggest man in physiological science this country has been favored with. Only the makers of counterfeits disagree—along with their kept "front men" in strategic places in the government and colleges.

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Formula for Longevity

"Soviet scientists have now discovered the long-sought formula for longevity. Certain to be unpopular with advocates of a shorter workweek, the formula is 'constant and sometimes quite intense work, often continuing almost right up until death.' It was based on an extensive study of 10,000 men and women ninety or more years old. The study also produced a rebuttal of the theory that people who live in the mountains live a long time."

—*Medical Science*, Pa.

Celiac Disease Often Allergy to Wheat

In 1953 Drs. J.H. van de Kamer and H.A. Weijers of Utrecht observed that when celiac disease patients were taken completely off all wheat products, their appetite returned, they gained weight, their skin color improved, and any steatorrhea disappeared. This was repeated in thirty consecutive cases. It was found also that natural vegetable oils were better tolerated than animal fats or processed oils (hydrogenated fats). These findings have since been confirmed by English investigators.

Antibiotic Abuse

"The three members of the tetracycline group—chlortetracycline, oxytetracycline, and tetracycline—are closely related chemically, and there is very little difference in their behavior when they are administered. Like penicillin, they are being used too frequently in futile prophylaxis. Also, too frequently they are given to patients with minor upper respiratory infections. Therefore, severe gastrointestinal disturbances as a result of their use are becoming more common. Diarrhea and anal and vaginal lesions are most troublesome and, at times, can he very disabling.

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Monilial infections appear and cause oral mucous membrane irritation, which can seriously impair the patient's ability to ingest foods. More dangerous than these is the sudden development of staphylococcal enteritis that is fatal in a high percentage of cases."

—Dale G. Friend, MD, and George A. McLemore Jr., "Some Abuses of Drugs in Therapy," *New England Journal of Medicine*, Vol. 254, No. 26, June 28, 1956.

Tip of the Month (Night Coughs in Children)

Coughing at night in children denotes calcium lactate and vitamin F complex deficiency.

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